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Building Energy Efficiency and the Use of Raw Materials

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Abstract

To become a country of energy saving, consumption reduction, low carbon emissions and life has become a national policy background, we need to convert conception of architectural aesthetics and make necessary adjustments and consciousness. Techniques and methods of support, or method of the research are still needed in the construction, building energy conservation, the environmental protection, low carbon and recycling methods are taken measures. Developing, finding and adopingt "native" and "primary" processed materials, or in which inject new technology to form new material is an effective approach to ensure more ways from environmental protection, energy-saving building and building materials in such ideas to implement.

Keywords: building, building materials, real estate;

1.Introduction)

Promoting energy saving, energy emission reduction and low-carbon lifestyle are a national policy..In January 1, 1998 started the implemented the "Energy Conservation Law", Promote building energy efficiency for all people to save energy target of 50%, the state also enacted a "civil thermal design",GB50176-93,"Standared of Energy Conservation Design ",JGJ126-95, "Standard of hot summer and cold winter zone". Gradually , since the implementation of many aspects show tangible results. China is rapidly developing, the reality is that large population with relatively less land and resources, less energy-saving construction. Most recently, China news of building energy consumption indicators continue to expand, building area of large-scale increase, land, resources, energy costs and the impact on the environment, and all the wisdom of our test in the natural environment and tolerance. Therefore in the construction, aspects of concrete construction and feasible mode and method, the new technology improve the construction, production and life style, into the environmental philosophy, the specific materials etc. All consciousness is very necessary. To study the new technology conditions architecture "native" or "junior" materials used for the application and the concrete implementation method, carding and mode for its size, optimization, and batch enter to provide theoretical and practical implementation.

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2.Two aspects need to

To solve the energy saving, energy consuption, emission reduction, two aspects need to

2.1.To change people's aesthetic consciousness and natural materials in the concrete implementation.

Low carbon buildings and building materials is to highlight the function, economy, environmental protection and energy saving features, energy saving awareness of the need for adequate and modern technical content support. But what we can't ignore is that various entities constitute the architectural form and space and image, with the visual characteristics of form and aesthetic function. People's cultural consciousness and aesthetic habit have been accumulated for long term, clean and "packaging" ideas leading luxuriant, Brilliance of building materials about the selection. In large-scale machining enough popularization, industrial information concentration isn't high, people yearning that visual and psychological "blinding" and "class". Plus material production and vendors in the competition for selling, promote, and also in processing series contributes to a great extent. As in many public or size of space environment with the mirror polishing, such as stone, brick. Just a moment, ground moisture increases the chance, who fell to let people carefully.. In many places in the city's central square to have encountered this embarrassing stories, laying the light rain in a large granite, causing many people before the accident that slip, and will then square managers with smooth surface of the way into hair. Granite polish need lots of water, electricity and machines, don't wear, and against the people of energy. Plus subsequent will also have much oxygen board singeing, how many energy such as waste? In general, the building mode with cement metope brick is directly, pass, is hanging on to ceramic tile, stone, glass, metal plate is positive solutions. These practices is obviously practical function and visual perception will oppose. In some of architectural design in practice, though the national standard, but for insulation, reach the standard to improve thermal insulation material, and the cost of sight, so often by some constructors, reduce standard privately with outdated standards, the materials of low degree of simplified to a minimum. This is the love of surface, the surface material thoughts into fine,blinding texture, and will use function and internal to lower level, is the direct cause of the idea.

Simple, character and amenity should be a building, especially in the mainstream residential building. Paris Champs Avenue should be a high-level world-famous commercial district, and its kilometer street shops are small pieces of tiles. The ground of Versailles palace is not because it is hard to do a magnificent granite, for the convenience of the carriage, at the upper surface is thick white sand, absorption, heat drain and very characteristic. Red tile roof, white, yellow, gray brick wall building self-contained, simple and chic, not only the architectural heritage of traditional culture, but also a good performance and interpretation of the aesthetic use of primary materials.

To building energy saving, consumption reduction and emission standards, in addition to execute compulsory national regulations and standards, still must convert ideas, change in nature, and aesthetic consciousness, function and appropriate for beauty. The initial processing of materials, natural or "protoplasm sense of beauty", "simple and natural beauty," "utility function" and other beauty more important than dazzling, glossy, deep processing, to meet the visual perception is more valuable Not to the level of luxury for the construction standards, to dispel the level of psychological evaluation of materials, and more from the long-term sake, for future generations to consider, To the "native" or "primary" was able to achieve better energy-saving, environmentally friendly materials naturally introduced into large-scale construction activities

2.2.Large, multi-channel development and found, low carbon materials.

In all kinds of concrete construction activities, injection, environmental protection, low carbon and recycling, with corresponding such ideas as support technology, still need to continually develop and found.

- *Wall top material*

In the housing materials of the wall, use about 70% of the hollow bricks, ashes, cinders brick, aerated concrete, construction waste comprehensive utilization and adding plastic particles in the concrete is good material in building walls. As a replacement, new clay materials such as clay bricks of waste, hollow bricks, clay, building blocks, aerated concrete composite plate, plate, etc. At present, aerated concrete is set for bearing and insulation materials, it can achieve a single national energy-saving materials (50%) of the energy requirements. Say aerated concrete products should be as a massive wall material, and as the preferred autoclaved aerated concrete slabs with qualitative light, insulation, heat insulation, fireproof performance. Coal fly ash, with the waste farm lightweight porous features and potential water rigid, can be used as raw materials production. Development of fly ash materials not only solved the problem of pollution caused by industrial wastes, energy and resources to solve problems of recycling. Make full use of current output about 320 million tons of industrial waste and garbage. Vigorously develop resource saving building materials, reduce unit product, make full use of the materials consumption recycling. We should focus on developing all kinds of free, free of sintering steam curing process of natural products and fly ash brick lytag etc. The effective thermal insulation materials used in roofing, are now using more insulation core board perlite insulation instead of conventional asphalt or concrete perlite Practice has proved that using hollow, interlayer and water logging form helps increase insulation heat preservation coefficient, as the rural traditional straw hat, make use of straw weaving, hollow and water logging drainage, form, function of insulation and heat preservation. The expansive pearlite Wen Xin board insulation and convenient for construction, low cost, no pollution, Its main technical indices, density of 110 ~ 150kg/m3, Thermal conductivity for 0.04 0.06 ~ W/m, K, Heat coefficient is 0.90 ~ 0.11 m2, K. The compressive strength than 0.2 Mpa, Bibulous rate is less than 0.01%, Steam the permeability coefficient for 218 million spxillion 7g ~ M.N.P/a. Index reflects its density is small, low thermal conductivity, and bibulous rate and steam permeability coefficient are very low. This energy with other thermo-protective material together, constitute the important element of energy-saving building.

- *Architectural Glass*

Modern buildings without glass, glass for daylig single attribute of the glass insulation heat preservation performance is poor, so abroad have adopted hollow glass as common rules and actual practice. While China's new adopted vacuum glass of tall, because the vacuum glass was better insulating glass saving a 18%, although 16% higher costs, but its energy saving effect is obvious.

Hot reflective coated glass is a kind of good choice, thermal energy is not only reflected coated glass and adornment effect, still can rise to defend glare, single perspective effect, still can save energy, the effective protection of air conditioning of energy-saving operations.

In recent years, the development of the new energy-saving coated glass and low radiation called low-e glass, adopted vacuum magnetron sputtering method in glass surface coating multi-layer metal or other compounds. This glass of 380nm a 780nm optical transmission rate is high, especially infrared (infrared) has higher cosco reflectivity, which can ensure pervious to light, can reduce indoor, the energy conservation should be spread, the main application of glass.

- *Property development and use of new materials*

Several large area is used in the construction, adjust measures to local conditions, using modern technology content, the technology development native, real estate, is quite natural and recycled materials, and is now realize low carbon objectives of the best choice. If use some of the construction method of traditional folk, inject new techniques, according to the different terms and conditions, individuation, large and small size and scope of application, there is also a greater development prospects.

Add grass with soil reinforcement is used for public granary rural often a building is built model, soil, will make mud in the mud, prewetting mixing gradually base rounded in tuen mun. Have strong, warm sealing performance characteristics, but due to dirt easily, high dependence, plus artificial new materials and new model, make this a characteristic architectural gradually disappear. If the mud room, stone house, brick houses are prevalent in rural areas of civil construction methods, there are local materials, low

construction costs, there are cool features, but not bad for a long time weakness,。Today, those in rural areas has been largely abandoned the building model.

In fact, the traditional stone house, although the safety of adobe houses and huts, some rely on long enough, but in fact it uses local building materials are not purely by thermal processing, not long-distance transport, collection facilities, the characteristics of low-cost, but also cool, eco, carbon, environmental protection and resource utilization advantages.

Undoubtedly, the native building materials to be combined with modern technology to find effective ways to address the use of real estate materials. From a physical point of view, extensive use of sintering the material structure due to changes in attributes that are widely used, such as cement, gypsum, green, red bricks are formed in a certain temperature sintering materials for buildings and strength. But, a lot of sintering process must use a lot of energy and additional materials, and often this kind of production will bring huge energy release of environmental impact, both energy and cost. To change the material properties, appropriate improvement in other ways of building materials, processing technology for cold heat sintering process, change for natural viscose etc, may be added chemical research and development, we need to vigorously push. As in the mud to add new
adhesive agitate for dry, and press power in the mud casting enclosed stainless steel wire mesh or nylon net technology, will greatly increase the strength and mud casting, again as in the humidity PiQiang mud on the wall paint brush high strength, not only have better strength and endurance, also can make it beautiful.

2.3.In reality the operation should be done in several aspects of the work

Vigorously develop without construction waste, no pollution environment, do not affect human health of green environmental protection building materials products. Vigorously develop the recycled material resources.

3.Conclusion

Development and develop new-type multi-functional materials, pay attention to the research and development of new technology, new products, new technology, including products processing, such as the technology and building materials, development has antibacterial, photocatalytic and deodorization, disinfection of ecological function building material.

Vigorously develop and use new materials, the use of low estate, building the traditional convertible.

Establish the evaluation system of green architecture is an important measure of the development of new building materials of security. "Green building evaluation system is based on the theory of the concept of sustainable development,... one thing in common: reduce ecological environment, improve the quality of building environment load, the offspring development. It will allow for a long time fundamentally reverse human nature for attitude to blindly, which reflects the relation between man and nature of the understanding of the unity of opposites to change". [1]

References

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